Creating the Backbone
A New Narrative Outline according to the Competition

Introduction - The problem as we see it (Thesis)
Looking to a sustainable future in semi-urban settings, how can designers and government interact to establish a means of rethinking housing communities within the current US system of regulations. Comparing international examples allows us to interpret successes and missed opportunities in the movement toward ecological cohesion with the environment.

“How can housing be more desirable and affordable if freed from the layers of prescriptive code restrictions which have grown up over the years?”
Introduce ourselves as the “eco-freaks”

Competition as a 3 sided conversation
With one primary topic to be selected, using the other two to assist in the complete understanding of the didactic conversation, we will focus on the

The Design itself
Housing in America, and the world / Looking to community
The Seattle based Duwamish Cohousing Community and what they accomplished
The other three based on what specifically they can bring to the table

The Players
Core community values
Greater social acceptance
Local government

Technical Problems Encountered
Engaging the sustainable building Industry
Problems encountered with an emerging market
Developing exploration on technology

Marketing to Government for Change
A new opportunity in sight
Improving a disjointed American lifestyle, in the Northwest too!
Creating change in the world of outdated codes
(introduction to codes) Looking at the DDP in Seattle
(Design Development Project) – A means of challenging codes in zoning etc. in Seattle

Looking for new community Living with integrity
Finding alternatives, introduced as immediate connection to project
-Vancouver B.C.
-Denmark
-Australia
Strength in numbers – Economies of scale
- Achieving greater results together, while consuming less individually
- Shared resources
- Growth of a extended family

Integrating into the social norm A greater public understanding
Interaction with greater neighborhood context
- Organizations
- Community Councils
- Other housing of similar and different types
Utilizing local districts – Centralizing within urban setting
- Markets / Parks / Venues / Schools
- Transportation minimization
Interact with and challenge government Inspire forward development
- Listening to local responses
- DDP neighborhood input
- Feedback loop – Education administration can use
Why things succeed
- Learning from failures
- Learning from successes

Moving towards sustainability An environmental incorporation
Duwamish respond to what they can, progressively designing within abilities
- Landscape (runoff)
- Building (windows, orientation)
The international scene Learning from others
- What else could America look at in foreign places,
- What would e inappropriate
- A matter of time and accessibility of products

Learning from a progressive push in codes and regulations
Extrapolating a motion for future exploration in development
Responsive architectural gestures generating cohesion within context
Climate
Density
Community
Culture
Sustainability
Previous outline…
Used to organize extended text information

**Common Spaces** (turning the visual connection into understanding)
Siteplans (Circulation, Common areas, Entries) all overlaid together

**Functions**
- Creating public and private spaces (establishing a gradient)
- Different approaches to shared spaces (how they are organized)
- Benefits of shared amenities (what they offer)
- Dealing with cars and parking (integrating into community)

**Landscaping**
- Capture natural environment
- Connection to context
- How does it foster community

**Integration** of all aspects
- Looking at the connectedness of whole layout (what worked, & didn’t)

**Cultures**
- Values of the peoples
- Architecture as a reflection of the people
- Internal Community looking inward for social stability (pros & cons)?
- External Community looking outward for external acceptance (pros & cons)?

**Materials**
- Built reflections of the local environment and climate (outdoor awnings, etc.)
- Sustainable oriented responses
  - Enclosure materials and building types
  - Water management programs
  - Dealing with toxins in buildings / Alternatives
  - Recycled components
  - Energy capturing and alternatives

**Codes and Government**
- Looking at design infrastructure (Codes)
  - (the unintentional byproduct of impromptu decision making) planning…?
- Regulations that Seattle currently faces (Duwamish)
- How Seattle has approached this opportunity
- Looking to other examples (relate back to Duwamish topics)
  - Cranberry commons, and energy initiatives
  - Christie Walk, and sustainable guidance from government
  - Ibsgaarden, designing to expand

**Conclusion**
- What local and national authorities can do to promote sustainability through
  - Community,
  - Energy & resource allocation,
  - Government involvement,
-and a little long term planning
Proposal for a new development strategy in America and internationally
-Sustainability
-Community
-Contextual relationship
-Social values
-Regulation

Any other ideas for insertion (please give idea where it might work best)

The questions to ask:
How can we best learn from this community, what has and has not worked with the architectural design of an intentional community?

-Any assistance with codes, rules, or regulation?
  (from government or others, as AIA for duwamish)
-Where do preexisting rules prohibit proper ecological and community development?
-Does the government allow interaction with, or challenging of, the regulations?
-What help to implement sustainable technologies did you receive?
-Any other innovations toward community and ecological living?
introduction—the problem as we see it (thesis)

This study is a comprehensive and comparative analysis of four environmentally conscious cohousing projects located in urban settings around the world: Duwamish Cohousing in Seattle, Christie Walk in Australia, Cranberry Commons in British Columbia, and Ibsgaarden in Denmark. The communities are approximately the same size and were all built to meet similar climatic conditions; however, the residents of each brought unique requirements, and the developments were guided by individual cultural expectations. The goal of the research is to determine whether climate response overwhelmingly dictates design patterns or whether varying social, economic, and governmental structures are more important factors influencing architecture. This investigation yields new understanding of how people in different environments and with different restrictions can build to realize a shared vision of community and sustainability. Commonalities as well as dissimilarities will be noted and explained under specific conditions, including utilization of materials and technology, treatment of gathering areas, and consideration of local customs. The authors of the case are four advanced architecture students from the University of Oregon, including undergraduates and master’s candidates, who are currently studying intentional community design in the context of ecologically sound construction practices.

Looking towards a sustainable future in semi-urban settings, how can designers and the government interact to rethink housing communities within the current American system of regulations? Comparing international examples allows us to interpret successes and missed opportunities in the movement towards ecological cohesion.

“How could housing be more desirable, affordable, and ecologically sensitive if outdated codes were revised to reflect new technologies and practices in green building?”

the authors:

Michael A. Hahn is a local dummy whose enthusiasm for the built realm has superseded the antiquity of mimicking and representational forms, progressing towards a natural architectural response to living systems in support of the people they shelter.

Maureen “Mo” McCafferty thinks people should live sustainably, whether that means helping those of less fortune or building with materials that have little environmental impact. She holds a Bachelor of Science in Architecture from Washington University in St. Louis. She is currently a graduate student working towards a Master’s degree in Architecture.

Noelle Ji Sun Miller will graduate with a Bachelor of Architecture and minors in Art History and Business Administration in June 2005. She has interned with a Portland architecture firm and believes her education has adequately trained her to design buildings as art, but she has had little chance to learn about designing for the environment. She decided to take an ecologically focused design studio because she wanted to know more about “green” building.

Heidi Spaly is a graduate student who returned to school for her Master’s in order to study ecological design. She holds an undergraduate degree in Environmental Design from the University of Colorado at Boulder and has professional experience in Denver and San Francisco.
the case studies introduced (the benefits of looking at each community; site plans demonstrating visual connection)

**Duwamish**
Architect: Arellano | Christofides
Date Completed: June 2000

Duwamish is located in the western hills of the Duwamish Industrial District. It is in a medium density residential neighborhood, surrounded by townhouses and single-family homes. It is organized around a linear axis that creates an essential core to the community; this linear path arranges the individual dwellings’ front doors in visual proximity and thus facilitates community living and interaction. Shared amenities are at a focal point within the complex. Though industries such as Boeing dominate the southern end of the Seattle sound, Duwamish functions as a small and independent city hidden from the calamity common to larger cities. Amenities within two miles, including South Seattle Community College, minimize unnecessary travel.

Highly integrated within the physical context and social atmosphere of greater Seattle, Duwamish demonstrates one way in which housing complexes can encourage community interaction. A revision of outdated building codes, eradicating unnecessary limitations, in a development such as Duwamish would allow for even greater levels of interaction. Such progression will serve as the first step in redesigning the conventional American neighborhood for the environmental requisites of twenty-first century architecture.
Cranberry Commons
Architect: Birmingham and Wood Architects and Planners
Structural Engineer: Chiu Sandys Wunsch Engineering
Contractor: Artian Construction Ltd.
Client/Developer: Cranberry Commons Cohousing Development Corporation
Date Completed: October 2001

Vancouver, British Columbia is a cosmopolitan city boasting more than a dozen four-star hotels (as rated by expedia.com) and plans to host the 2010 Winter Olympics. Ecologically minded building is not usually a hot topic. The abundance of tourist attractions, shopping centers, and nightlife opportunities has cultivated a population focused largely on the individual’s role in society—meaning an interest in cohousing, with its group-within-a-group dynamic, has yet to take hold in the minds of the general public. This is an urban setting at its best—but along with the many advantages of a big city come environmental problems and a sometimes claustrophobic atmosphere. It is easy to imagine that a small family might feel overwhelmed in the midst of the concrete grid.

Fortunately, several nearby communities provide suburban options for those who prefer a slower-paced life. Residents of outer Burnaby live in houses, not high rises, but are still close enough to Vancouver to keep from feeling isolated. Cranberry Commons Cohousing is one example of a group of people who created their own neighborhood not only to reap social benefits but also to encourage sustainable construction in western Canada.

First floor plan, from http://www.cohousingconsulting.ca/subpages/projects_cc.html
Ibsgaarden
Architects: Jes Edwards and Helge Christiansen
Date Completed: 1985

Ibsgaarden Cohousing Project is in Roskilde, Denmark, approximately twenty miles west of Copenhagen. The climate is similar to the climate in the American northwest, averaging thirty degrees in the winter and mid-sixties in the summer. The project consists of twenty-one apartments arranged in a horseshoe plan around a common house. The members built only on half of the one and a half acre site, leaving the rest for a sports field and an organic garden. There are two floors of one-storey apartments; the entrances to the apartments are all directly connected to the inner courtyard. The only break in the apartment block is the entrance from the parking area.
Christie Walk
Architect: Paul F. Downton for Ecopolis Pty. Ltd.
Project Manager: Ed Wilby
Structural & Mechanical Engineer: Sagero Consulting.
Builder: EcoCity Developments Pty. Ltd.
Landscaping: Chérie Hoyle with Jacqui Hunter for Ecopolis
Client/Developer: Wirranendi, Inc.
Date Completed: Stage 3 projected September 2005

Christie Walk is located in the southwestern inner city of Adelaide, South Australia. Adelaide is the capital of South Australia and home to over one million people. Christie Walk is a demonstration of how people can live sustainably in the urban environment. The community was designed according to three main principles: water and energy conservation, material reuse and recycling, and healthy people and friendly public places. A non-profit organization, Urban Ecology of Australia, instigated the Christie Walk project. (Urban Ecology, 2005).
common spaces (understanding the visual connection)

[site plans showing circulation, common areas, and entries]

Duwamish

The linear plan is inherently reminiscent of a neighborhood street; however, the layout of the community also responds to site restraints, existing infrastructure, and community demands. The site is significantly sloped; in section view, one can see how the dwellings are arranged to accommodate and take advantage of the hill. There are twenty-three living units with a variety of plans. The smallest units have two bedrooms in about 900 square feet; the largest, encompassing approximately 3,600 square feet, is a five-bedroom house with an attached guest apartment. The house comes with a price tag of $675,000, thus reflecting its appeal—the average cost of a single-family house in the area is $270,000.

Cranberry Commons

The site is a city block in a fairly urban area; two existing structures were incorporated in the design. Twenty-two units on three and one half stories surround a courtyard and small lawn; common spaces also include a few gardens, a dining room, and an office. The units range from 500 to 1,300 square feet and include townhouses as well as flats. People with homes on the ground floor can access the complex through private yards bordering the street, but a more frequently used main pedestrian entrance provides opportunities for social interaction. Residents encompass a variety of professions but are generally upper middle class, as the price of a home is augmented to compensate for the common building.

Ibsgaarden

The main entrances to the central courtyard are from the parking lot on the south end of the site and the neighborhood to the east. There is also a minor connection to the street on the west. Paths divide the courtyard into four sections, and a sidewalk forms a border. The paths and sidewalk lead to individual apartments or the common house. The circulation resulting from this arrangement allows for visual contact with the entire community; residents can see what is happening in the common spaces and join the activities if they choose. A driveway leads from the main street to the parking on the perimeter, but the circulation within the site is limited to pedestrians.
Christie Walk

Stages one and two of Christie Walk are complete; construction is expected to be finished for stage three by September 2005. The community is on one half acre with fourteen dwellings. Each unit has a private balcony or enclosed patio. It is a T-shaped lot, which is not ideal for passive heating and cooling systems for all of the buildings. A community house with an adjacent garden, two stand-alone cottages, and three townhouses are oriented on an east-west axis and take advantage of good solar orientation. Two more townhouses and a six-unit apartment building are on a north-south axis, with a long eastern façade. Clear paths connect the common areas.

functions
- creating public and private spaces (establishing a gradient)
- different approaches to shared spaces (how they are organized)
- benefits of shared amenities (what they offer)
- dealing with cars and parking (forming pedestrian communities)

One of the general concepts behind cohousing is that by sharing community resources, residents use their buying power more efficiently and thus have access to a wider range of goods. That is to say, several families can share infrequently used items such as lawn mowers and canoes; with the cost spread over three or four people, more items can be purchased than by each family buying separately.

Duwamish

A 5,000 square foot common house provides dining and entertaining facilities and caters to children’s play, adult privacy, and utilitarian services. A separate shop and art studio enhance the community gathering spaces, serving a secondary function as an exercise room. The community area integrates the indoors and outdoors with a strong connection between the common house and a paved terrace. The interstitial space is an elegantly integrated awning with immediate access to the dining room through a rollup door, thus accommodating events in all weather.
Cranberry Commons

Small gardens associated with individual dwelling and niche-like spaces, meant for only a few people to use at a time, preserve the need for privacy. However, Cranberry Commons was built to encourage people to gather in the center much more frequently than in single-family housing situations.

The complex is surrounded by streets and other structures instead of open ground or trees. The site design was also shaped by the fact that two buildings already existed on the lots. In line with the residents’ “desire to enjoy community life and know [their] neighbours” (http://www.cohousing.ca/cranberrycommons/CCC_files/whoweare.htm) and a focus on the happiness and well-being of children, the basic pattern of the development is an enclosed courtyard with shared gardens and play spaces.

Many of the items a more independently housed family might buy for occasional use, such as canoes and tools, are purchased by a group and shared in order to increase efficiency. Services like child care and home repair are exchanged among members so that money is not “wasted” by relying on nonmembers to accomplish what could be done within the community.

Thirty-eight parking spaces were required by city code, but the residents of Cranberry Commons own only twenty-two cars. (This is due in part to the proximity to bus service and in part to the sharing of vehicles.) The residents cannot turn extra parking into storage space or other use because of code.

http://www.cohousing.ca/cranberrycommons/CCC_files/cohousing.htm
**Ibsgaarden**

The interiors of the apartments are private. The front entrance is located on the courtyard and is considered public, while there are private patios located in the backs of all the first floor apartments. There is a strong focus on public spaces.

The approaches to the courtyard, common house, and open space to the north are very direct. The site plan is organized to allow for centralized circulation. The members of the project do not individually own their apartments; they each own a share in the project. They eat dinner together most nights of the week. The cleaning and maintenance of the common house is a shared responsibility and voluntary.

The code in Roskilde requires an average of one and one half parking spaces per apartment. This would equate to thirty-two spaces for Ibsgaarden. The residents were able to design the parking for the number of cars the members owned at the time of construction. Because the original members’ parking needs were known at the beginning of the project, the government was lenient on the parking requirement. Additional space can become more parking spaces as needed in the future. Currently, this space is occupied by a community-shared shed.
Christie Walk

Each homeowner purchases a piece of the property when buying an individual home; the property is owned on a community title. Members contribute to the community by helping with gardening projects and repair projects (interview, 2005). The community was formed during a work-build project constructing the straw bale community house. Due to proximity to public transportation, the need for parking was limited. The local government allocated fewer parking spaces due to the urban location (Commonwealth of Australia, 2004).

landscaping
- capture the natural environment
- connect to the context
- foster community

Duwamish

Integration of natural wetlands clearly demonstrates that flexibility in regulations can maintain or improve the environment. This wetland, on about an acre of the property, allows play areas for children and reassuring proximity for parents. A subtly winding path ends on the boundary of this wild land. The area is a good space for gardening and a teen hangout. The wetlands are not limited to a single clustered space; a course of paths channels and diffuses runoff throughout the site. The central corridor of the community thus becomes an active manifestation of native systems assisting natural cycles.

A few species of edible fruit trees are hidden near the wild play area. Diverse vegetation provides year-round color, uplifting spirits on even the lousiest of days. Two gardens, producing about 5% of the food consumed on site, and a prevalent recycling post are irrefutable evidence of environmental preservation. However, the recycling implies a barrier at the front of the site and is one of the less successful applications of space allocation.
Cranberry Commons
Rain barrels in the courtyard collect water for the vegetation, which was chosen for its hardiness and lack of excessive need for irrigation. The urban setting is reflected in the many hardscaped areas in the courtyard; small gardens keep the atmosphere from being too much like a “concrete jungle.” The enclosed space was designed to not force people together. The mix of residents, including singles, families with small children, and retired couples, was a concern, as they had different noise level preferences and privacy needs. But features such as two entrances—one public and the other more private—to most homes and scattered gathering nodes take care of this problem.

Ibsgaarden
The landscaping is more formal in the courtyard and more natural to the north of the site. A hedge defines the street edge on the west and functions as a natural fence protecting the community. Trees along the parking spaces separate the parking area from the neighbor’s property. Plants in front of the apartment entrances are in a very informal layout that creates an interface between the private apartment and the public courtyard and allows for personal expression.
The project is built on the original footprint of the Ibsgaard farm that once existed on the site and is inwardly focused. The layout fosters community within the cohousing development by allowing open sightlines and communication among all the members. The overall site is closed off from the larger community; physically, this does not create an opportunity for an open or welcoming feeling.

**Christie Walk**

Christie Walk is conveniently located close to Adelaide Central Market and has good access to public transportation. Since the project is located within the city, there is little integration of a “natural” environment. The surrounding atmosphere is that of other buildings that are directly adjacent or very close to the boundaries of the project site. Christie Walk recycled existing materials found onsite from an existing building. They used bricks, steel, stone and timber in the construction of their carports and circulation paving. The plants onsite are mostly native species that need little water. Exotic plants are used for shade and for food. The small community garden uses on-site recycled water (Commonwealth of Australia, 2004). The gardening and paving projects foster a sense of community (interview, 2005).

**integration of all aspects**

-the connectedness of the whole layout (what worked and what didn’t)

**Duwamish**

Covered outdoor spaces act as porches at the entries of each house. At nine feet deep, they are generous enough for activities to take place but not overwhelming to the community. This allows a human scale to characterize the community, softening an otherwise overwhelming feel of barren walls and exposed front doors. Winslow, a nearby successful cohousing development, lacks this softening of scale, missing an opportunity for outdoor recreation in inclement weather. Instead, a comfortable environment activates a personal space within a common core. These inhabitable façades reflect the inhabitants, as their lives pour out on to the decks even in January.

**Cranberry Commons**

“I was worried that my privacy would not be respected and that there would be too much contact with my neighbours,” wrote consultant-turned-resident Ronaye Matthew in the Canadian Cohousing Networks’ Winter 2002 newsletter. However, after having lived in the commons for a while, Matthew reports, “I thoroughly enjoy the spontaneous connections [with neighbors].”

http://www.cohousingconsulting.ca/subpages/projects_cc.html
**Ibsgaarden**

Visual connection is strong, creating a very social atmosphere in the cohousing project.

**Christie Walk**

The parking situation is somewhat unclear. From available online images and the site plan, it appears that the parking is inaccessible from a major street. However, an interview with a Christie Walk resident reveals that parking is not an issue. The community house does not seem central to the community. The common spaces are set off from the rest of the units. The location of the project directly in the city of Adelaide, with its proximity to transportation and the market, leaves few excuses for the need of personal transportation. With the reuse of materials from the previous building, Christie Walk has integrated many of its initial goals.

**Cultures: values of the people**

**Duwamish**

Strong interaction with outer social rings creates an ambiance often devoid in suburban neighborhoods. Social stratification occurs on a small scale, as about half of the residents have younger children. This lends itself to the mentality of sharing responsibility to achieve a common good. This is architecturally manifested by shared common spaces with similar functions. However, there is no sense of total segregation. The community boasts a wide variety of people and has great social diversity. Regarding the governing significance of the residents, Duwamish successfully encourages the entire group to enjoy the comforts and opportunities of social sharing. This community boasts the benefits of home schooling and childcare provided by multiple families. By operating in a comfortable environment, such an arrangement frees time for adults and enriches the interactions of the children.

**Cranberry Commons**

The twenty-two houses in Cranberry Commons cater to approximately fifty people. These numbers fall within the typically recommended size for cohousing projects; neighbors have the option of developing close relationships with one another or remaining casual acquaintances without seeming aloof. Movie nights and informal get-togethers connect the residents, but people are still able to interact with friends outside of the community and to retain some of the busy urban lifestyle of the area.

[http://www.cohousing.ca/cranberrycommons/CCC_files/wherewelive.htm](http://www.cohousing.ca/cranberrycommons/CCC_files/wherewelive.htm)
The members of the community came together because they shared a social attitude and wanted to live in a more open community than what was typical. Cohousing has become a very common lifestyle alternative and housing option in Denmark. It has been around since the 1970s and is well accepted by the general population. They typically have a resident leave and a new resident move in every two or three years.

**Christie Walk**

It is hard to evaluate what has and has not worked in terms of planning at this point. The first stages of the project were completed in 2001; so far, no one has moved out. A third stage is expected to be completed in the fall of 2005. It is expected that more “community” functions will take place when the thirteen-unit apartment building is completed (interview, 2005).

**Architecture as a Reflection of the People**

**Duwamish**

Although the organization of the living spaces around the shared public realm is clearly a division of functional zones within the site, the common grounds are important both the community internally and to any others who would like to experience their lifestyle.

**Cranberry Commons**

While there are private gardens and smaller spaces meant for only a few people to use at a time, and a need for privacy is generally respected; Cranberry Commons was built to encourage people to gather in the center much more frequently than in individual housing situations.

http://www.cohousing.ca/cohousing.ca/cranberrycommons/CCC_files/homes.htm
**Ibsgaarden**

The architecture at Ibsgaarden is traditional Danish. The farmhouse is an example of early Danish construction; the original design was honored in its reuse. The apartment buildings were constructed in 1985 and reflect the architectural style common in Denmark at the time. This is also reflected in the use of common construction materials. The layout of the original buildings on the Ibsgaarden farm lends itself well to a successful, traditional cohousing form, with the housing units wrapping around a courtyard and the common house as a main focus.

**Christie Walk**

**internal community: looking inward for social stability (what are the pros and cons?)**

**Duwamish**

Safety in numbers allows for greater emotional stability, as the interaction of psychological and social aspects of community create an economy of scale in living. This is manifested in shared expenses and responsibilities.

**Cranberry Commons**

The founders of the community established it as a non-profit corporation “expressly for the purpose of financing and directing the design and development of a multi-family residential building.” (http://www.sustainableregion.org/casestudies/cranberry.htm) A consensus process makes financial decisions affecting more than just one person or family in the commons, but unlike such developments as Breightenbush, the members’ main source of income is from separate careers rather than a business within the community. Cranberry Commons has achieved a balance between the traditional first-world tendency to look for a “good deal,” at the expense of some individuality and privacy, and the vision of interlocking as a community to conserve resources (including money) and energy.

While Cranberry Commons is not centered by a common spiritual belief or lifestyle, the members share general ideas of the way they want their community to run. “Through managing our community and sharing common spaces, activities, and equipment, we enjoy co-operative and friendly relationships with our neighbours. . . Our cohousing community was created by people who wanted to design housing that would support greater social interconnectness while
making efficient use of resources.” (http://www.cohousing.ca/cranberrycommons/index.htm) This importance of interpersonal relationships and ecological improvement is shared by many cohousing projects. The community appears to have found a good way to maintain these ideals within their homes while also integrating nicely with the surrounding city and its culture.

external community: looking outward for external acceptance (pros and cons?)

Duwamish

Seeking out dynamic representation within the context of the larger neighborhood to establish themselves as integrated members of the social structure, Duwamish actively pursued the desires of the surrounding community. This interaction led to decisions that preserved elements intrinsic to the area, such as the greenways that pass through roads and the preservation of the vegetated slopes. The implied partnership with the Puget Ridge Council assisted the establishment of an actual entity within a yet undisturbed site, thus allowing a more substantiated presence than otherwise possible. A didactic relationship with the city in the Design Demonstration for Innovative Housing Project also allowed for preservation of elements that under normal circumstances would have required compromising results with this larger local community.

Cranberry Commons

As a group, the community is small enough that it will not appear to the rest of the population as an intensively inward-focusing commune (as is sometimes the case when people unfamiliar with cohousing hear of such projects as Christiania).
Ibsgaarden

Christie Walk

materials: built reflections of the local environment and climate (outdoor awnings, etc.)

Duwamish

Not too many options are currently open to the American market in terms of establishing experimental building, or even proven building methods other than the standard of light wood framing. Minimal living is the mindset in the design and development community as well as the individual family. Three story units are common, as stacking vertically allows for tighter density and more common space.

Due to the code requirements of the “vernacular” American building, the structures use typical construction techniques; however, the materials are of native quality in that light timber framing utilizes a local, native building product. This is likely mere happenstance due to the universal application of timber as a building product even in areas without native forests.

Cranberry Commons

South-facing windows take as much advantage of solar energy as possible to keep things warm in winter.

Ibsgaarden

There are no sustainable materials consciously used in the design and building of the project. The materials are typical of traditional Danish design at the time of construction, and the common house renovation used materials common in 1985.

Christie Walk

Because of the Mediterranean climate in Adelaide, insulation is one of the major factors for an ecological building. Temperatures in Adelaide can vary widely; temperatures can drop ten degrees in one hour (Commonwealth of Australia, 2004). Insulation is used to protect the interior during the cold winter months to keep the interior warm, it keeps the building cooler during the summer months when the air outside is warmer. Straw bale and Thermalite are the main insulators in the Christie Walk dwellings.

The exterior construction of the freestanding cottages is timber-framed load-bearing, rendered 500 mm straw bale walls. The straw bale acts as insulation. Plantation pine or recycled timbers are used as joists. Floor decking is Ecopanel, a compressed straw equivalent to particleboard, containing no woodchips or formaldehyde. This product was made by an Australian company but is no longer available. High volume stiff reinforced concrete slabs provide thermal insulation for the buildings. No perimeter insulation is needed. “All concrete in slabs and mass walls contains the maximum percentage of flyash that the engineers and suppliers (Pioneer Concrete—an Australian construction material company) would allow. Flyash is a waste product from power stations and its use reduced the amount of new cement used in the construction.”
The exterior construction of the apartments and townhouses is a 300 mm thick load bearing autoclaved, aerated concrete (Thermalite). The Thermalite walls work both as structural support and as insulation for the units. The internal party wall between townhouses is a 400 mm load bearing, low-strength concrete (called “earthcrete”). The earthcrete walls provide thermal mass in addition to the concrete slabs. Monterey pine proprietary trussed joists are used with the Ecopanel floor decking. The ceilings are generally insulated with reflective foil sarking and 200 mm Totine Fibre (Australian company) polyester batts (containing a high percentage of recycled PEP plastic).

“Windows are all purpose-made from recycled timber with aluminum fly screens, justified on the basis of long life, low maintenance and almost 100% recyclability.” The life expectancy of this development is in excess of one hundred years. The exterior construction is designed to remain the same while the interior partitions, doors, and windows can be renovated or replaced. This is easy to accomplish with the use of renewable materials. Fixed windows use double glazing, and open windows use single glazing because they can remain open year-round.

Many of the other finish materials were the responsibility of the homeowners. Non-toxic construction and environmentally conscious finishes were used throughout. “Paints, varnishes, and stains are all by BioProducts, produced in Bridgewater, South Australia under license for a German company.” Bamboo flooring, Marmoleum by Forbo and ceramic tiles (local products took precedence) are examples of other ecologically sensitive finish materials.

This project teaches a lot about the manner in which we explore building technologies and methods. By acknowledging the opportunity to allow proven methods less destructive than current standards, America has the ability to develop in an ecologically sound manner.
sustainably oriented responses

Duwamish

Solariums on the southern façades provide seamless integration of indoor and outdoor spaces while supporting passive solar heating principals. The application of this feature occurs primarily on the two largest units. The common house, which utilizes it in a sunroom, incorporates it into the built form with greater resolution. The second largest unit, a five-bedroom detached house, appears to utilize this feature as an addition to an already existing house. Spatially, this becomes an external element to the overall composition. Both, in function, act as thermal buffers against infiltration of summer heat and the winter chills.

Christie Walk

Technologies—heating, cooling, energy, wastewater:

There are no mechanical heaters or air-conditioners in Christie Walk; the expectation is that none will be needed. “Each house works as a ‘thermal flue’ allowing controlled release of warm air whilst drawing in filtered, cooled air from the vegetated, landscaped surroundings… The apartments rely on good cross-ventilation and high thermal mass for cooling with the roof garden adding a thermal buffer to the upper floor apartments.” Ceiling fans maintain airflow on still days. Electricity is generated with photovoltaic panels above the apartments’ roof gardens. This electricity is not used in Christie Walk but is sold to the local energy utility (Commonwealth of Australia, 2004). This set-up is similar to photovoltaic generators in Eugene, Oregon.

closure materials and building types

Duwamish
Cranberry Commons
A typical light timber framing system used recycled and new wood studs. Because the site included existing buildings and is deeply integrated in an established urban fabric, few innovative construction techniques were available. Flyash replaced regular concrete as much as possible due to concerns about excessive CO2 emissions, and photovoltaic panels collect energy to support an in-floor radiant heat system.

Ibsgaarden
Wood and asphalt siding, a concrete foundation, timber framing, and ceramic tile flooring are used throughout.

Christie Walk

water management programs

Duwamish
Implementing on-site runoff management systems such as bioswales, Duwamish can treat water locally and simultaneously reintroduce it to the water table. Native riparian vegetation leaches out contaminants commonly found lingering in the watershed. This also reduces peak loading on the local utilities’ abilities to manage infrastructure. The process protects the ecosystem and replenishes the groundwater supply, which has recently been severely tapped in some parts of the country.

Cranberry Commons
Despite a wet climate, rain barrels in the courtyard collect water to irrigate the vegetation. The extra cost of low-pressure showerheads and toilets was quickly offset by the fact that these features greatly reduce the need for potable water. Even though Vancouver’s climate is not overly arid, an intelligent use of water affects more than just the amount needed to run a community. Residents’ water bills will be lower, and less energy will be used maintaining the supply.

Ibsgaarden

Christie Walk
toxins in building materials; alternatives

Duwamish

The common house uses comfortable finishes to reflect a casual living atmosphere. Such detailing is hard to find in the industrial kitchens commonly used for cohousing. The appliances are high quality, but the soft touches of the interstitial spaces allow for a relaxed environment.

Cranberry Commons

Non-toxic paints and other finishes were used as much as possible, although economic limitations meant that certain alternatives were unfeasible. The greater Vancouver area is particularly plagued by CO₂ emissions, which are largely the result of extensive use of concrete in construction. The production of cement “strongly contributes to the greenhouse effect and to global warming. Each tonne of cement produced releases about one tonne of CO₂ into the environment.” (http://www.ecosmart.ca/kbase/filedocs/csrcranberry.pdf) Cranberry Commons did not want to build with typical concrete so as not to worsen this problem. Flyash, or coal combustion byproducts (CCBs,) can be substituted for Portland cement to make concrete with a high long-term strength and low cost. (http://www.flyash.com/) This appealed to the residents for two reasons: greenhouse gas emissions were reduced, and the waste from burned coal was recycled into a new product instead of dumped in a landfill. EcoSmart™ Foundation Inc. has produced several reports detailing the use of flyash in the slab and parking structure of the cohousing.

Ibsgaarden

Christie Walk

recycled components

Duwamish

Cranberry Commons

Much of the appeal of Canada lies in the country’s wilderness and natural landmarks. Burnaby residents live among several lakes and parks and have views of the 1200-ft. Burnaby Mountain. In accordance with the local emphasis on responsible forestation, Cranberry Commons wanted to build as much as possible with recycled timbers. However, challenges involving the quality of the available supply and the cost of de-nailing the wood resulted in only 10% reused.
**Ibsgaarden**

**Christie Walk**

**renewable energy resources and alternatives**

**Duwamish**  
Radiant floor heating utilizes hot water (and the fact that heated air rises) to provide warmth from the floors to the ceilings. Energy losses as compared to conventional forced air systems are minimized.

**Cranberry Commons**  
Solar hot water panels, funded in part by the Canadian government's Renewable Energy Deployment Initiative and British Columbia’s Renewable Energy Technology Program, are only the beginnings of water conservation at Cranberry Commons. Heat for the dwellings is provided partly by space heaters but largely by an in-floor, radiant system. According to Cranberry Commons’ website, “The extra cost of the in-floor system was made more palatable by the anticipation of a warm floor under bare feet, avoiding the dust and noise issues associated with a forced air or electrical heating systems, and the $3,500/year savings in energy costs for the project.”

**Ibsgaarden**  
The members of the Ibsgaarden cohousing project have started a composting program, and the community garden is organic.
Christie Walk

codes and government
- design infrastructure (codes and the byproducts of impromptu decision making)
- planning
- regulations Seattle currently faces (Duwamish)
- how Seattle has approached this opportunity
- other examples (related to Duwamish topics)

Duwamish

Goals:
- challenge typical American neighborhoods and the codes derived from them
- develop housing concepts to diversify Seattle living situations
- allow flexibility in housing development not existing under current governance
- show successful integration in current neighborhoods through surveys, interviews, and reviews
- improve the character of the neighborhood
- stimulate growth and progressive development
- act as a model for other local housing projects
- increase diversity in housing types and price ranges

Evaluations:
- allow the city to observe which codes could be changed; specifically, zoning
- ask neighbors questions:
  "Were there any unintended consequences that need to be resolved?"
  "What do the neighbors think of this type of housing?"
  "How has this impacted parking, traffic, and population demographics?"
- 1998 Housing Design Competition resulted in a changed ordinance
  (enabled the Demonstration Program for Innovative Housing Design)

Associations:
  Design Demonstration Project (DDP)
  Department of Design Construction & Land Use (DCLU)
  American Institute of Architects (AIA Seattle)

  Mayor Paul Schell and the American Institute of Architects (Seattle Chapter) made a cooperative effort to establish a collection of built or planned case studies of innovative housing. Through a city-wide design competition, architects and builders were challenged to identify opportunities for updating and improving current codes. The competition’s goal was, in part, to find examples of housing in which improved zoning regulations resulted in a greater demand for the mixing of housing types and social classes. A strong connection to the community helped govern the exploration process, as the input was reflected in form and designs concerns.
Mark Hinshaw led a discussion of entries and the forward tactics implemented within to further the propagation of the Design Demonstration Ordinance, which was aimed to reevaluate current codes.

“…creative and collaborative means of identifying innovative approaches and solutions.”

The competition acted as a guide for future developments similar to the twenty-one entries.

the Design Demonstration Project (DDP):

After review, the top eleven projects pursued ways to engage the design development process. Here they were allowed, under the endorsement of the mayor and the AIA, to challenge codes impeding proper construction. By encouraging professionals to challenge current problems, the project established a didactic conversation and began to develop a new approach to the relatively rigid existing means. Looking towards the future, this will help affordable housing and community development to integrate in a neighborhood context and increase density.

The participation of the professional design community is essential to having insight into the current situation. Previously no cohesive format or underlying direction existed to generate momentum in a direction benefiting society. Through the revision of new designs, city policy planners can effectively respond to this momentous direction.

**actions of Duwamish** (challenging the organization of current codes)

- zoning restrictions on height and bulk
- private space requirements are counterintuitive to community living
- achieve natural shared landscaping
- required full street improvements will potentially destroy preserved wetlands
  - save the 17th Street wildland for Duwamish and the greater community
- discourage clustered parking (to save valuable land, centralize it at the front of the community)

**common house integrated amenities commonly challenged**

- childcare
  The facilities for childcare and play are incorporated into the common areas and can utilize the space for home schooling.
- home offices
  Operate businesses from the common house, reducing travel time and fuel consumption.
- guest quarters
  (not in place)
- possibility for a required subdivision
  A common problem for this type of development is the required subdivision of space, causing problematic divisions of the community.

**what Duwamish has done to persuasively implement…**

- working with the neighborhood
  Keeping in close contact with the neighborhood has become an essential way to gain the support of those nearby. Discussions and presentations with the Puget Ridge, Delridge and Tri...
Councillors paved a smooth transition into the larger context. The Delridge Council interacted with the mayor to gain further approval.

-sensitivity to the previously existing situation

By using a design process that considered the intentions of the local community, the residents ensured that their introduction to the neighborhood was not only accepted, but welcomed. The process integrated wetlands preservation, natural landscaping, and cohesion with context.

**Cranberry Commons: energy initiatives**

Solar hot water panels, funded in part by the Canadian government's Renewable Energy Deployment Initiative and British Columbia’s Renewable Energy Technology Program, are only the beginnings of water conservation at Cranberry Commons. The government is actively trying to create more sustainable architecture; alternate sources of energy are at the forefront of design.

**Ibsgaarden:**

The cohousing parking was designed to expand if needed to meet the code. The Danish government began offering subsidies for this type of project to help offset the initial costs and make it easier to secure loans for alternative housing projects in 1981.

**Christie Walk: sustainable guidance from government**

We are waiting for more information about codes and government.

**Conclusion**

**What can local and national authorities do to promote sustainability through:**

- community
- energy and resource allocation
- government involvement
- long term planning

**Additional Questions:**

A. What are the differences among the villages regarding climatic and cultural responses?
B. How do the building types differ?
C. Does a common religion or other form of worship shape the community?
D. How are the cultural values of the country reflected in the eco-village?

We started out looking at climatic response in the community designs, but we soon realized this was not a primary concern. Social and economic implications took precedence; climate was a minor factor. The residents all stress the importance of shared meals, childcare, chores, and celebrations. These activities create important senses of community and sustainable living.

The US has financial and material resources to build sustainable communities, but Americans hesitate to live in co-housing or build sustainably. Sustainable materials cost more; many projects are not as environmentally friendly as they could be. Economics play an important part in community design. For example, Cranberry Commons had to stop using reclaimed lumber due to associated cost and time factors.
Because of the cost, low-income families cannot afford to live in this type of community; access to this lifestyle is limited to middle- and high-income families. Is this really sustainable? After all of these factors have been dealt with, climate can then regulate what types of materials are used and how the community is designed.

Christie Walk was especially concerned with thermal insulation after the site was organized, based on its location in the inner city. A variety of insulating materials included straw bale, thermalite, and earthercrete.

We researched the materials are and how they were influenced by the climate, but by doing this, we found that it was only a secondary factor behind economic and social implications.

**Proposal for a new development strategy in America and internationally**

- sustainability
- community
- contextual relationship
- social values
- regulation
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Christie Walk:


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our original responses to the specific questions for the competition:

Context:
This study is a comprehensive and comparative analysis of four environmentally conscious cohousing projects located in urban settings around the world: Duwamish Cohousing in Seattle, Christie Walk in Australia, Cranberry Commons in British Columbia, and Ibsgaarden in Denmark. The communities are approximately the same size and were all built to meet similar climatic conditions; however, the residents of each brought unique requirements and the developments were guided by individual cultural expectations. The goal of the research is to determine whether climate response overwhelmingly dictates design patterns or whether varying social, economic, and governmental structures are more important factors influencing architecture. This investigation yields new understanding of how people in different environments and with different restrictions can build to realize a shared vision of community and sustainability. Commonalities as well as dissimilarities will be noted and explained under specific conditions, including utilization of materials and technology, treatment of gathering areas, and consideration of local customs. The authors of the case are four advanced architecture students from the University of Oregon, including undergraduates and master’s candidates, who are currently studying intentional community design in the context of ecologically sound construction practices. (189)

Conflict/etc.:
While most architects in the US would like to create environmentally sustainable buildings, restrictions such as budget and governmental code often make it difficult to incorporate innovative technology on a larger scale. Residents of the Duwamish community report that had they been able to do so, they would have specified elements such as straw-bale construction and more collection of solar energy. Cultural differences between the US and other developed nations also result in a shifting of the priorities considered in the design process, both for construction techniques and for positive living experience. In this project, attitudes of other countries towards the relative importance of social and environmental values to economic limits are studied; these attitudes and the resulting code regulations (or lack thereof) greatly influence building standards. It would be desirable to find ways to learn from other countries’ construction practices and apply them within American code constraints. Concern for an imminent global energy crisis has brought the concept of “green” building to the forefront of current design trends; perhaps by studying international precedents, we can develop a better understanding of ecologically sound architecture. (184)

Major Players:
The creation of Duwamish, the Seattle site, was regulated by regional and national government as well as such local organizations as the Puget Ridge Community Council (a nearby intentional neighborhood that helped the members of Duwamish establish the group’s social structure). As is common with many cohousing projects, the members contributed to the design process by working closely with the architects to ensure that their living spaces would meet their specific needs. Design proposals were reviewed by participating families, who then voted to reach a unanimous consensus before final decisions were made. The office of Arellano/Christofides has an extensive background in multi-family housing and won the Mayoral and AIA Co-Sponsored Design Demonstration Project Competition in 1998 for Duwamish. The firm specializes in restaurants and residential projects and provides construction administration as well as design services. City funding made it possible for some of the dwelling units in Duwamish to be categorized as affordable housing. The three comparative sites, Christie Walk, Cranberry Commons, and
Ibsgaard, all had similar levels of resident input, and existing cohousing groups or authorities assisted their developments. (180)

Learning Objective:
Although the concept of sustainability is well established, this study offers the reader new information regarding environmentally conscious construction practices in the following contexts:
- international building traditions
- unique challenges associated with cohousing communities
- economic and governmental impacts
- experimental technologies

The three foreign communities were chosen to compare to Seattle’s Duwamish because of their educational information on:
Christie Walk, Australia
- number and variety of new environmental building procedures
- high level of government support

Cranberry Commons, British Columbia
- physical proximity to America resulting in cultural similarities juxtaposed with governmental differences
- possibilities for adaptive re-use of existing buildings

Ibsgaard, Denmark
- historical significance as the country that originated cohousing
- cultural tradition of high-density living influencing design

Additionally, general information will benefit the architect or contractor interested in:
- the advantages of cohousing from an ecologically conservative viewpoint
- how the social structure of the typical cohousing community dictates the optimal physical design
- how to use architecture to best establish essences of community within different contexts (159)

Keywords:
Community, Culture, Sustainability

Synopsis:
An analysis of the building, cultural, and technical aspects of international communities, when compared with the same components for Seattle-based Duwamish Cohousing, demonstrates that environmental (climate) concerns are less significant than the region’s socio-economic patterns when influencing design. Specifically focused on sustainable living practices and local government regulations, this study concludes that architecture is created to respond to multiple factors and suggests several alternative ways to do so. As “green” building becomes more mainstream, future designers will need to consider all of these factors in order to meet the increasingly conscientious demands of both their clients and the earth. (99)